FERNALD ENVIRONMENTAL MANAGEMENT PROJECT OFFICE
FERNALD, OHIO
OHIO FIELD OFFICE

ACCELERATING CLEANUP:
PATHS TO CLOSURE
STRATEGY

SITE NARRATIVES

DECEMBER 1999

<u>Attachment 3</u> to the Ohio Field Office Site Narratives

Table of Contents

EXECUTIVE SUMMARY

Introduction

DOE-Fernald Environmental Management Project (DOE-FEMP) is committed to safely restoring the Fernald site to an end state which serves the community's needs. This submission of the revised *Accelerating Cleanup: Paths to Closure* document reflects the complete remediation of source contamination by 2008 and long term closure and monitoring activities to be conducted post 2008. The Fernald Environmental Management Project (FEMP) has an independently validated baseline which reflects the completion of the project in fiscal year (FY) 2008. The time of completion is three years beyond the date DOE-FEMP and the DOE Ohio Field Office (DOE-OH) management have committed to complete the cleanup of all the Ohio sites. Fluor Daniel Fernald, Inc. (FDF) will continue to look for opportunities which exist in the FEMP Baseline that could result in potential savings, thus reducing cost and bringing the schedule back within the original ten year time frame. The FEMP continues to oversee and review these potential savings, but no definitized plan is in place at this time.

The work scope provides for the remediation of insitu contaminant sources by FY 2006 including Silo 3, remediation of waste pits and other waste units, D&D of production-related buildings and disposal of associated debris, construction and closure of the On-Site Disposal Facility, remediation of soils, removal of legacy wastes and nuclear materials, installation of an infrastructure to extract and treat groundwater such that the aquifer is restored to a 20 ppb contamination level with ongoing monitoring, and accelerated waste retrieval for Silos 1 and 2. Follow-up activities for FY 2006 through FY 2008 include the treatment and disposal of Silos 1 and 2 wastes per the Operable Unit 4 Record of Decision, and anticipated monitoring. Activities scheduled in FY 2009 - FY 2070 include aquifer restoration to maintain adequate risk mitigation which includes continued operation of the extraction and treatment network to ensure full containment and capture of any residual contaminated groundwater plumes. This time period will also include maintenance activities, D&D of the Silos 1 and 2 Treatment Facility and the AWWT, and removal of offsite pipelines/wells when appropriate. Long term monitoring and maintenance will take place until approximately 2070.

Strategies and Prioritization

DOE-OH, DOE-FEMP, and FDF are committed to producing efficiencies and providing support necessary to complete FEMP by FY 2006, in keeping with the Ohio Vision 2006. Major initiatives are underway throughout DOE-OH to compress schedules for all projects. Principal focus areas are the reduction of support costs to make funding available for reinvestment in physical cleanup activities, reengineering, maximum use of fixed-price subcontracts, optimal work sequencing, technology application, innovation, stakeholder involvement, continuous improvements to safety culture, and worker motivation. DOE-OH and DOE-FEMP, in turn, have "living" strategic plans in place to ensure all Ohio sites can share in reaching Vision 2006.

End State and Stewardship

FEMP is committed to ensuring the protection of its employees, people in the surrounding communities, and the environment. With this in mind, the end state of the Fernald site will have an On-Site Disposal Facility (OSDF) in place, in addition to monitoring wells. Access to the OSDF will remain restricted. The remainder of the site is expected to achieve final cleanup levels which could support a variety of land uses; however, the decision to limit use to ecological restoration and recreational use was made based on DOE's Natural Resource Damages Act (NRDA) obligations and stakeholder input. Residential and agricultural uses will not be considered for any portion of the site, consistent with the recommendations of the Fernald Citizens Advisory Board. Industrial uses may be considered for the 23 acres of potential economic development land. The DOE, or a successor Federal agency, will maintain stewardship responsibility for the site. The OSDF will remain under institutional controls and monitoring in perpetuity.

Scope, Cost, and Schedule

The scope, cost, and schedule reflected in this plan are as documented in the FEMP Baseline. The principal work scope in the baseline after FY 2006 is directly related to the Silos Project, Facilities Shutdown, Decontamination and Decommissioning, and associated Program Support and Oversight activities. The most significant challenge Fernald faces in accomplishing the Ohio 2006 Vision is accelerating the Silos Project.

The FEMP continues to be on an accelerated path for implementing cleanup at the site. The cleanup schedule for the site was reduced from an estimated twenty-five years to ten in 1996. This reduction in schedule is the most important mortgage reduction activity ongoing at the site; however, reductions in overhead costs are being rigorously pursued. Once FEMP is completed, the only remaining activities include environmental monitoring & maintenance of the closed site.

Critical Closure Path

Due to the declaration of 948 metric tons of nuclear material as waste, some projects on the critical path have been reprogrammed; however, the end date remains the same.

Progress/Changes from Last Year

The major impact to the FEMP baseline since last year has been the declaration of 948 metric tons of nuclear material as waste. Since this scope of work was not in the existing Baseline, three waste Project Baseline Summaries (PBSs) (Nuclear Materials, Mixed Waste, and Waste Management) must be reprogrammed. Also, additional funding is required to complete the work. Therefore, this year's cost-to-completion estimate has increased since last year's *Accelerated Cleanup: Paths to Closure* due primarily to the declaration of this material as waste and the

generation of a Project Baseline Summary for activities related to long term monitoring and maintenance.

Disposition Planning

During the execution of remediation and closure projects at the Fernald site, a wide variety of low level radioactive, mixed, hazardous, sanitary wastes, and by-product material waste streams will be generated. In addition, populations of legacy and existing low level waste, mixed waste, and nuclear materials that were generated at Fernald prior to FY 1995 must be dispositioned prior to site closure. By providing qualitative and quantitative data on generated waste types, the waste generation schedules assist in the planning for the safe, effective, and efficient management and disposition of FEMP wastes.

Programmatic Risk

Programmatic risks have been assessed and incorporated within the Remedial Design/Remedial Action Work Plans which are developed in support of the approved Operable Units Records of Decision. (Please see Section VIII for more information.)

Public/Worker/Environmental Hazards and Risks

Recent efforts in Safety Basis documentation resulted in downgrading five former Category 2 nuclear facilities to radiological facilities. Further downgrading of nuclear facilities will proceed with the disposition of nuclear material stored onsite.

A lead Integrated Safety Management team from DOE-OH conducted a verification review during April 1999. The FEMP Integrated Safety Management System (ISMS) is scheduled for verification on or before September 1999.

Enhanced Baseline Development

It is believed that opportunities exist in the FEMP Baseline that could result in potential savings, thus reducing cost and bringing the schedule back within the original ten year time frame. The FEMP continues to oversee and review these potential savings, but no definitized plan is in place at this time.

Stakeholder and Tribal Nations Involvement

The Fernald site's communication effort focuses on providing accurate and timely information to stakeholders and soliciting public involvement in the decision making process. Stakeholders are routinely consulted on the entire spectrum of site issues and activities using a wide range of communication tools. These tools include public meetings, newsletters, and printed materials, making site management available to stakeholders and using one-on-one communication to relay information to

and solicit input from a wide range of stakeholders. These communication tools complement a commitment to openness that has allowed the site to develop a productive dialogue that involves stakeholders in all aspects of site cleanup.

I. INTRODUCTION

EM and Site Mission

The Fernald Environmental Management Project (FEMP), which is owned by the U.S. Department of Energy (DOE) and operated by Fluor Daniel Fernald, Inc. (FDF), presently focuses entirely on environmental restoration and waste management activities. The FEMP, physically located in southwestern Ohio, was first established under the auspices of the Atomic Energy Commission, now the DOE, as a uranium metals processing facility for use in nuclear weapons. While continuing production for 40 years, the production of uranium metal peaked in 1960, and decreased during the period from 1964 to the early 1980s. Although the early 1980s brought an acceleration in the production when the United States increased defense spending, it was quickly replaced by an increasing demand for environmental accountability. Production ceased in July 1989, and the management responsibility was transferred to the Office of Environmental Management (EM).

FEMP's mission is to remove or dispose of all site nuclear materials, carry out decontamination and decommissioning (D&D) of all site buildings and facilities, and return as much of the site as possible to public use. An Environmental Assessment (EA) has been prepared proposing ecological restoration for the FEMP, with the exception of an onsite disposal facility and 23 acres set aside for potential future commercial development. Residential and agricultural uses will not be considered, consistent with the recommendations of the Fernald Citizens Advisory Board. Industrial uses may be considered for the 23 acres of potential economic development land.

After remediation is complete, access to the On-Site Disposal Facility (OSDF) will remain restricted and institutional controls and monitoring will remain in perpetuity. DOE, or a successor or federal agency, will maintain stewardship responsibility for the site.

II. STRATEGIES AND PRIORITIZATION

Cleanup Approach

FEMP's primary cleanup approach includes excavation, treatment, and offsite disposal of the site's most contaminated materials; excavation and onsite disposal of less-contaminated waste materials (primarily soil and demolition debris) in an engineered, onsite disposal facility; dismantling of buildings and other structures; dispositioning of the remaining uranium inventory; and treatment of contaminated

groundwater. The FDF baseline scope includes activities required to complete remediation of all insitu sources of contamination on site. It includes the successful mitigation of risk by eliminating or controlling all human and ecological exposure routes to contamination.

Accomplishments through FY 2006

The safe shutdown of nuclear facilities was completed in FY 1999. By FY 2006, all facilities will be dismantled except for the Advanced Wastewater Treatment Facility and the Silos Project Facilities (performed under the PBS Post Source Term Removal). Waste placement and final capping will be complete for the OSDF by FY 2006. The Leachate Collection System will continue to operate to collect all leachate for treatment at the Advanced Wastewater Treatment Facility. All materials from the Waste Pits will be dispositioned. This includes waste treatment by thermal drying as required to meet the Waste Acceptance Criteria (WAC) of the disposal facility, off-site shipments of waste for disposal at a commercial disposal facility, offsite shipments of waste not meeting WAC for disposal at DOE's Nevada Test Site, and the decommissioning and removal of infrastructure by FY 2006. All area excavations (except for Area 7 which is the Silos and AWWT areas) will be completed and dispositioned in the OSDF. All nuclear materials and uranium waste will be off site by FY 2005. Mixed and low level waste will be treated and disposed of off site. The support and oversight function will be essentially complete in FY 2006, except the minimal support required in FY 2007 and FY 2008 for the Silos Project and finalization of Aquifer remediation.

Accomplishments Post FY 2006

Minimal site support services, utilities, and maintenance activities will be required to support the remaining activities. Minimal services will support the maintenance and standby of the Advanced Waste Water Treatment Facility (AWWT), monitoring and maintenance activities, D&D of the AWWT and related onsite and offsite pipelines and wells and related soils, and shipment of this material offsite or disposal in Cell 8 of the OSDF. Maintenance and standby of the AWWT will be necessary to ensure full containment and capture of any residual contaminated groundwater plumes, monitoring and maintenance activities. D&D of the AWWT and related onsite and offsite pipelines and wells and related soils will be completed, and this material will either be shipped offsite or disposed in Cell 8 of the OSDF. The Soils Project activities will include natural resource restorations (final grading) and pre-design and design activities for Area 7 (Silos and AWWT areas) excavation. Treatment and disposal of Silos 1 and 2 wastes will be finalized per the Amended Operable Unit 4 Record of Decision, as consistent with the existing baseline. Waste management scope will be limited to a support function. Support and oversight activities for FY 2006 through FY 2008 will include support for the Silos 1 and 2 wastes and finalization of aquifer remediation.

A PBS, Post Source Term Removal (PBS OH-FN-13), has been added to the existing 12 PBSs. PBS OH-FN-13 includes all of the post-closure activities, many mentioned above, which are not currently part of the existing baseline. This PBS begins in FY 2007 with long term maintenance,

monitoring, and support, and is anticipated to continue until FY 2070. This PBS attempts to capture activities that are tied to the completion of OU4 and final certification of the aquifer not included in the FEMP baseline. For example, the actual excavation for Area 7 (Silos and AWWT areas) in the Soils Project planned in this PBS will take place after FY2008. Although many of the activities require EPA and Stakeholder approval, general assumptions have been made, and an estimate of a rough order of magnitude has been completed for the scope, schedule, and cost to complete this work.

EM Policies

Compliance

The Department places a high priority on compliance with environmental laws, regulations, agreements, standards, nuclear safety rules, and other applicable requirements.

Risk to Workers, the Public, and the Environment

The FEMP is committed to risk management as an integral part of setting priorities, sequencing project work, and measuring performance, and is continuously analyzing the risk of its activities. This analysis of the overall risk related to activities includes, but is not limited to, the budget process, short and long term cost, future planning and involvement of the stakeholders.

Environmental Safety and Health

Safety is an integral part of planning and performing work, and the Fernald site is proud to be a leader within the DOE complex for implementing safe work practices. Delineation of the specific Safety & Health resources required to address both site-wide and project-specific risks is crucial to ensuring projects can be accomplished with the resources allocated.

Workforce Restructuring and Worker Transition

The FEMP has a Workforce Restructuring Plan to cover worker reductions that will occur at the site on the road to closure. The general plan requires specific data whenever a worker reduction is necessary. The contractor will use a work force planning process to align worker skills with the necessary project work. This process will identify skills, numbers, and time frames for specific worker skills. The process will also identify when reductions are necessary with DOE-FEMP approval for each specific reduction plan.

Compliance Drivers

The most significant regulation governing cleanup at the FEMP is the Comprehensive

Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act in 1986. CERCLA establishes a statutory framework for the cleanup of sites like FEMP and establishes a National Priorities List (NPL) which ranks facilities requiring cleanup actions on a nationwide basis. FEMP was placed on the NPL in 1989.

In July 1990, consistent with Section 120 of CERCLA, DOE and the United States Environmental Protection Agency (USEPA) signed a Consent Agreement, establishing a framework and schedule for the remediation of the site. The Consent Agreement established the five operable units on the FEMP site. In September 1991, the USEPA and DOE jointly signed the Amended Consent Agreement that established revised milestones.

The Ohio EPA and DOE signed a Consent Decree in December 1988 that established milestones to bring FEMP into full compliance with the Resource Conservation and Recovery Act (RCRA) and other regulatory requirements. The Amended Consent Decree was signed in February 1993.

DOE is required to comply with the Federal Facilities Compliance Act, and although FDF is not directly regulated under it, they are contracted to support DOE in compliance with it.

Planning Assumptions

The FEMP's basic planning assumptions include the following:

- RCRA, CERCLA, and NEPA integration will be maintained or improved.
- All Record of Decision requirements will be implemented.
- Site services activities level of spending will be developed based on the remediation schedule.
- Safety and administration levels of spending will be developed based on the remediation schedule.
- DOE oversight will be streamlined consistent with the Standards/Requirements Identification Documents (S/RIDS).
- OSDF waste placement will depend on the D&D Project and the Soils Project supplying required debris as planned.
- Both hazardous and/or mixed waste will continue to be generated throughout the lifetime of the FEMP project.

Budget Formulation and Life-Cycle Planning Process

The FEMP's budget formulation and life-cycle planning process are tied together. The Life-Cycle Planning Process determined the work scope and the sequence in which the work scope needed to be completed in order to remediate the facility by FY 2008. The budget formulation was based on the work scope in the Life-Cycle Plan and the funding available to accomplish the work scope. FDF will continue to look for opportunities which exist in the FEMP Baseline that could result in potential savings, thus reducing cost and bringing the schedule back within

the original ten year time frame. The FEMP continues to oversee and review these potential savings, but no definitized plan is in place at this time.

Contracting Approach

The FEMP prime contract is a cost plus award fee with aggressive, performance-based fee plans. Contractor performance is incentivized through the use of fee allocation tied directly to achievement of defined performance measures with little or no base fee. In the future, nearly all subcontracts expected to be awarded will be firm-fixed-price. Minimal cost-plus type contracts will be awarded. Labor hour contracts include onsite construction labor hour contractor and temporary personnel contracts.

III. END STATE AND STEWARDSHIP

FY 2006 End State and the Planning End State

The FY 2006 end state of the FEMP will be the D&D of all facilities and the excavation of all soils contaminated at levels exceeding the final remediation levels (FRLs). After FY 2006, several D&D activities will be completed, including D&D of the Silos facility and facilities associated with the Advanced Wastewater Treatment Plant (AWWT). The AWWT cannot be decommissioned until final certification that the aquifer has been cleaned to the FRLs.

Following D&D and final OSDF closure, the Fernald site will remain under federal ownership in perpetuity as required by the Operable Unit 2 Record of Decision. The final land use as described by the Environmental Assessment (EA) for Final Land Use at the FEMP is to conduct Natural Resource Restoration over the majority of the property. This land use meets all of DOE's regulatory obligations and is consistent with public input received to date. In addition, this land use allows the DOE to settle the State of Ohio's Natural Resource Damages Claim through on-site restoration activities, thus avoiding the need to purchase additional property.

Current, Future, and End State Maps

Attachment A illustrates the current use of the FEMP. Attachment B illustrates the 2006 final end state discussed above. The FEMP intends to potentially revisit site end-state/land-use assumptions should new technologies be developed or economic conditions improve. The assumptions used in developing this plan do not preclude some future scenario where the ultimate end state is "cleaner" if breakthrough technologies become available or economics change.

Attachment C illustrates the future use of the FEMP with a 2012 view of its remediated areas. Public comment has been received on both the Environmental Assessment and the Natural Resource

Restoration Plan. In addition, the Fernald Citizens Advisory Board has held a Future of Fernald workshop to assess public interests on public use of the restored site. The results of this workshop suggest the public is supportive of Native American Reburial onsite, but has strongly mixed opinions on recreational uses (such as hiking, biking, etc.) at the site and the proposal to construct an educational facility onsite.

Long Term Stewardship

Long term stewardship requirements for the site include monitoring and maintenance of the OSDF and some maintenance of the ecologically restored areas. The scope of this maintenance is not yet defined. Additional maintenance and staffing would be required to support the proposed educational facility.

IV. SCOPE, COST, AND SCHEDULE

Scope

The current scope provides for remediation of insitu contaminant sources by FY 2006 including Silo 3, remediation of waste pits and other waste units, D&D of project facilities and disposal of the debris, On-Site Disposal Facility construction, soils remediation, removal of legacy wastes and nuclear materials, and installation of infrastructure to extract and treat groundwater such that the aquifer is restored to a 20 ppb contamination level with ongoing monitoring. Follow-up activities for FY 2006 - FY 2008 include treatment and disposal of Silos 1 and 2 wastes and structures per the Operable Unit 4 ROD, and anticipated monitoring. FY 2009 - FY 2070 activities include aquifer restoration to maintain adequate risk mitigation which includes continued operation of the extraction and treatment network to ensure full containment and capture of any residual contaminated groundwater plumes. This time period will also include maintenance activities, D&D of the Silos 1 and 2 Treatment Facility and the AWWT, and removal of off-site pipelines/wells when appropriate.

Cost and Schedule

NOTE: *Attachment E profiles the cost and schedule for the Fernald project.*

The original FEMP Baseline estimate was completed in FY 1993 and submitted to DOE. After an extensive review by DOE and FDF and completion of revisions recommended by DOE, the baseline was approved in February 1994. It was based on the assumption that remediation would cost approximately $12 billion over a 30 year period. The baseline only reflected the initial six years and was prepared prior to approval and issuance of the Records of Decision (RODs) for each of the five Operable Units (OUs). Without approved RODs, there were major uncertainties concerning the schedule, cost, and technical methods to be deployed for remediation.

As RODs have been approved and issued by the USEPA, the scope of work has become more definitized. This led the FEMP to the FDF Accelerated Plan Baseline in which the scope of the ROD's were to be completed in ten years, FY 1996 to FY 2005. Final decontamination and demolition of water treatment plants, wells and pipelines, environmental monitoring and OSDF post closure and care would continue beyond the year 2005.

DOE approved the FDF rebaselining to reflect a ten year duration. The revised Baseline was given interim approval in May 1996, and final approval of the Accelerated Plan Baseline was received from DOE in August 1996.

A reduction in Congressional Funding in October 1996 prompted the Accelerated Plan Baseline to be replanned in FY 1997 (Phase I Replan), and at this time, the ten year period was defined as FY 1997 to FY 2006. In addition, FDF adopted a projectized organizational structure and replanned the baseline (Phase 2 Replan) to reflect a projectized Work Breakdown Structure (WBS). The reduced funding and technical uncertainty of the Silos project caused the ten year duration to slip past the original 2005 completion date.

The Phase 3 Replan of the Accelerated Case Baseline was completed and implemented for reporting in August 1997. The FY 1998 portion of this Replan received full approval from DOE-FEMP; however, due to approximately $310 million in cost growth to the baseline, only conditional approval of FY 1999 and outyears was received from DOE-HQ.

The FY 1999 Replan Change Proposal was submitted to DOE-FEMP in December 1997. The change proposal provided for site closure with the completion of all currently established in-situ contaminate source remediation and risk mitigation activities by FY 2006. In addition, the extraction and treatment infrastructure required to contain and mitigate risks associated with contaminated groundwater would be fully in place. Follow-up activities for FY 2006 through FY 2008 included finalization of treatment and disposal of Silos 1 and 2 wastes and structures and site service costs associated with the Silos.

The FY 1999 Replan Change Proposal had a total project cost (TPC) increase of $576M. The TPC includes, but is not limited to, preliminary design, conceptual engineering, research and development, project support, construction, startup, waste disposition, and landlord. In addition, the FEMP TPC includes costs associated the DOE-FEMP site office and the FDF fee, which is not part of the FDF baseline. It documents all costs since the entire site became a project in FY 1992 through project completion in FY 2008.

DOE-FEMP deferred an estimated cost growth of $216M for all FY 2007 - FY 2008 scope including remediation of Silos 1 and 2 wastes and related support project activities. For all projects except Silos 1 and 2, a well defined path forward had been identified through 2006 consistent with the

Accelerating Cleanup: Paths to Closure report issued June 1998. For the Silos project, EPA approval for the revised OU4 ROD is envisioned by April 2001. Shortly after approval of the ROD, a change proposal will be submitted to rebaseline all scope associated with the Silos 1 and 2 final remediation. The D&D of the AWWT facility and removal of related pipes on-site and off-site can not be completed until the final remediation of Silos 1 and 2.

Since the 2006 Project Baseline Summaries, 2000 Budget Request, and the DOE EM *Accelerating Cleanup: Paths to Closure* were all based on the FY 1999 Replan, FDF received approval from DOE-FEMP in August 1998 to implement the entire FY 1999 Replan electronic file. In October 1998, DOE-FEMP received DOE-HQ approval on the FY 1999 Replan Baseline Change Proposal with exceptions.

In December 1998, FDF submitted the FY 2000/2001 Detailing change proposals to DOE-FEMP. These CPs detailed activities in summary planning accounts and planning packages for FY 2000 and FY 2001 into work packages. The CPs were approved February 1999 and incorporated into the FDF electronic file. In June 1999, FDF submitted change proposals for waste management that included the disposition of nuclear materials recently declared as waste.

Many internal and external reviews have been performed on the FEMP Baseline. In March 1998, the U.S. Corps of Engineers performed an external cost review on the OSDF project with results showing the disposal cell estimates consistent with industry standards. In August 1997 and January 1996, external cost reviews were performed on Operable Unit 4, one by the U.S. Corps of Engineers and one by the U.S. Department of Interior (DOI) and the U.S. Department of Energy (DOE). In June 1996, LMI, Janson Associates, and Burns & Roe performed an external cost review on support costs showing the cost estimates were reasonable. In July 1995, DOI and DOE performed an external cost review on Operable Unit 1 and made formal recommendations to generate technical and/or economic advantages. In September 1993, MTC, Booz-Allen, and Burns & Roe performed an external cost review on the FEMP site and had no significant findings. In addition to external cost reviews, since 1991 almost fifteen internal reviews have been performed.

V. CRITICAL CLOSURE PATH

Items on the critical closure path include removal of low level waste from the FEMP, decontamination and decommissioning of facilities, placement of waste and capping of final cells in the On-Site Disposal Facility, and the remediation of Silos 1 and 2. (Refer to Attachment D.)

VI. PROGRESS AND CHANGES FROM LAST YEAR

FY 1998 Success Stories

- Completed safe shutdown of Plant 5.
- Completed safe shutdown of Plant 8.
- Completed safe shutdown of Sewage Treatment Plant.
- Completed D&D of Sewage Treatment Plant.
- Completed placement of Cell 1 clay liner of OSDF.
- Completed installation of Leachate Collection System for Cell 1 of OSDF.
- Placed first waste in Cell 1 of OSDF.
- Completed construction of OSDF Material Transfer Area.
- Began construction of Cell 2 in OSDF.
- Completed Southern Waste Units site prep work and majority of Inactive Flyash Pile excavation.
- Commenced operations after AWWT expansion.
- Completed Onsite Rail Infrastructure to support receipt of first shipment of railcars, receipt of locomotives, and initiation of onsite rail training.
- Received EPA Approval of Explanation of Significant Differences (ESD) for Silos.
- Awarded Silos Project contract for Proof of Principle.
- Initiated Small Scale Waste Retrieval at Silo 3.
- Achieved 3.5 million safe work hours in 330 consecutive work days without lost work day incident.

Changes to Baseline Assumptions

There were no changes from last years baseline assumptions.

Life-Cycle Cost Changes

In December 1998, DOE-HQ declared 948 metric tons of nuclear material as waste. DOE-HQ also informed Fernald that there would be no additional funding allocated to pay for the processing and disposition of this newly declared waste. In order not to impact other higher priority work scopes with enforceable regulatory milestones, Fernald is reprogramming all of the Waste Management activities including Nuclear Materials (PBS OH-FN-08), Mixed Waste (PBS OH-FN-10) and Low Level Waste (PBS OH-FN-11). This reprogramming will levelize all waste management activities to make the best use of available funds in fiscal years 1999 and 2000; however, additional funding is required for Fiscal Years 2001 through 2006 in order for Fernald to meet all regulatory milestones and to maintain the current site completion date. In addition, a new three-acre storage pad will be constructed in order to vacate the existing storage pad currently scheduled for D&D in FY 2003. The new pad will accommodate newly-generated sitewide waste streams sent to Waste Management for packaging and shipping, as well as a new building for the remainder of the nuclear materials to be processed and shipped. The delay of low level waste shipments to the Nevada Test Site also impacted the Life Cycle Costs for the FEMP. Due to a leaking waste container, the revised schedule and cost estimate for low level waste shipments are part of the reprogramming of the waste management activity.

Changes in Critical Closure Path or EM Mission Completion

Major changes in the critical closure path at the FEMP include the delay in shipping all low level waste offsite from a December 2001 date to May 2003. The completion of Facility D&D has also been delayed until September 2004, but the Soils excavation completing in FY 2005 is ahead of the original schedule. Provided additional funding is available in FY 2001 through FY 2006, there should be no impact to the FEMP mission completion date of FY 2008.

FY 1998 Performance on Life-Cycle Cost and Schedule

As outlined in the FY1998 success stories, significant progress was made in the overall remediation of the FEMP. Significant progress in the area of D&D Facility and Shutdown continue to help reduce the site maintenance and infrastructure costs. In the Waste Management area, a setback was experienced with the delay of all low level waste shipments due to a leaking waste container. Since that time, the leaking container problem has been resolved, and waste shipments are scheduled to resume in June 1999. The overall result of this delay has been an increase in cost and an extension of the completion date for low level waste shipments.

VII. DISPOSITION PLANNING

During the execution of remediation and closure projects at the Fernald site, a wide variety of low level radioactive, mixed, hazardous, sanitary wastes, and by-product material waste streams will be generated. In addition, populations of legacy and existing low level waste, mixed waste, and nuclear materials that were generated at Fernald prior to fiscal year (FY) 1995 must be dispositioned prior to site closure. By providing qualitative and quantitative data on generated waste types, the waste generation schedules assist in the planning for the safe, effective, and efficient management and disposition of FEMP wastes. The schedules assist in:

- Determining availability of material for placement in the OSDF.
- Verifying the proper mix of soil and debris for placement in the OSDF.
- Identifying sitewide treatment options.
- Planning for specific treatment campaigns.
- Identifying waste suitable for and planning of waste treatment.
- Planning waste storage requirements.
- Developing procurement and contracting plans.
- Developing transportation and traffic safety plans.
- Developing FEMP baseline plans.
- Supporting DOE Complex-wide integrated waste management planning.

The onsite nuclear material inventory consists of depleted, normal and low enriched uranium

materials. Some of the nuclear material has been declared waste. Removal of the nuclear materials is needed to complete safe shutdown and dismantling of the facilities.

The mixed waste activities includes the characterization, treatment, storage, and disposal. The treatment of mixed waste includes stabilization, processing at the AWWT, and incineration at the Oak Ridge TSCA incinerator, with disposal at a permitted commercial disposal facility.

Low level waste and other waste activities include the removal and disposition of backlog low level waste and the overall management of waste programs onsite. This involves the characterization, minimization, recycling, treatment, storage, and disposal of existing low level and sanitary wastes. Most soils will be disposed of in the OSDF. Waste pit materials will be sent offsite to a permitted commercial disposal facility, and legacy waste and waste exceeding the OSDF waste acceptance criteria will be packaged and transported for disposal at the Nevada Test Site.

The Waste and Material Disposition Maps are included as Attachment F.

VIII. PROGRAMMATIC RISK

The FEMP has not prepared a formal programmatic risk management plan (PRMP). However, programmatic risks have been addressed in the ROD development process and incorporated within the Remedial Design/Remedial Action Workplans which were developed in support of the approved Operable Units RODs and subsequently approved by EPA. Table 1 is a preliminary assessment of programmatic risks for each PBS for the three areas identified in Appendix H of the Integrated, Planning, Accountability, and Budgeting System Handbook (IPABS).

Table 1

PBS	Technology	Work Scope Definition	Inter-site Dependency	Average
OH-FN-01 Facility Shutdown	1	1	1	1
OH-FN-02 Facility D&D	1	1	1	1
OH-FN-03 On-Site Disposal Facility	2	2	1	2
OH-FN-04 Aquifer Restoration	3	2	1	2
OH-FN-05 Waste Pits	2	3	3	3
OH-FN-06 Soils	1	2	1	1
OH-FN-07 Silos	4	5 (Silos 1&2)	3	4
OH-FN-08 Nuclear Materials	4	5 (Treatment)	4	4
OH-FN-09 Thorium Overpack (COMPLETE)	N/A	N/A	N/A	N/A
OH-FN-10 Mixed Waste	3	1	3	2
OH-FN-11 Waste Management	1	2	2	2
OH-FN-12 Program Support and Oversight	1	1	1	1

IX. PUBLIC/WORKER/ENVIRONMENTAL HAZARDS AND RISKS

Safety and Health programs are enforced to facilitate operations, to ensure compliance with applicable regulations and permits, and to ensure that activities are conducted within approved and analyzed conditions conducive to worker health and safety and protection of the environment.

Recent efforts in Safety Basis documentation resulted in downgrading five former Category 2 nuclear facilities to radiological facilities. Further downgrading of nuclear facilities will proceed with the disposition of nuclear material stored onsite.

A lead Integrated Safety Management team from DOE-OH conducted a verification review during April 1999. The FEMP Integrated Safety Management System (ISMS) is scheduled for verification on or before September 1999.

X. ENHANCED BASELINE DEVELOPMENT

It is believed that opportunities exist in the FEMP Baseline that could result in potential savings, thus reducing cost and bringing the schedule back within the original ten year time frame. The FEMP continues to oversee and review these potential savings, but no definitized plan is in place at this time.

XI. TRIBAL NATION, STATE AND LOCAL GOVERNMENT OFFICIAL, REGULATOR, AND STAKEHOLDER INVOLVEMENT

FEMP stakeholders remain an important part of the cleanup decision-making process. FEMP continues to utilize a number of public communication tools to solicit input from stakeholders on the full spectrum of cleanup issues. Stakeholders receive regular updates on cleanup activities at the FEMP through monthly mailings, such as the "Fernald Report," the bi-weekly "A Look Ahead," and periodic mailings of topical fact sheets. Ongoing mechanisms for stakeholder interface include the Fernald Citizens Advisory Board, the Fernald Community Reuse Organization, the Fernald Envoy Program, and the monthly Cleanup Progress briefings. FEMP has received positive feedback for these methods of responding to the stakeholders' information needs.

The Fernald Citizens Advisory Board (CAB) is developing policy proposals on the "Future of Fernald." The proposals involve the future use of the FEMP property, the site stewardship, and long term monitoring. A public workshop was held in April 1999 to solicit input on future issues. The CAB expects to develop policy recommendations within twelve to eighteen months.

The Community Reuse Organization (CRO) is charged with developing and implementing recommendations and policies that assist the Fernald Community in offsetting losses to local economy resulting from FEMP workforce downsizing and completion of remediation. The CRO adopted a Community Transition Plan that identifies programs to assist the local economy and FEMP workforce during downsizing and closure process. The CRO submitted a request to DOE-HQ for an implementation grant to execute the Community Transition Plan.

Primary issues of regulatory and stakeholder interest for FY 1999 include waste transportation, the Silos Project, the On Site Disposal Facility, the remediation of the Great Miami Aquifer, and FEMP's annual remediation budget.